

## **CHAPTER 5**

### **WATER QUALITY PARTNERSHIPS IN THE WOLF RIVER WATERSHED**

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**5.1. BACKGROUND.** The Watershed Approach relies on participation at the federal, state, local and nongovernmental levels to be successful. Two types of partnerships are critical to ensure success:

- Partnerships between agencies
- Partnerships between agencies and landowners

This chapter describes both types of partnerships in the Tennessee Portion of the Wolf River Watershed. The information presented is provided by the agencies and organizations described.

## 5.2. FEDERAL PARTNERSHIPS.

**5.2.A. Natural Resources Conservation Service.** The Natural Resources Conservation Service (NRCS), an agency of the U.S. Department of Agriculture, provides technical assistance, information, and advice to citizens in their efforts to conserve soil, water, plant, animal, and air resources on private lands.

Performance Results System (PRS) is a Web-based database application providing USDA Natural Resources Conservation Service, conservation partners, and the public fast and easy access to accomplishments and progress toward strategies and performance. The PRS may be viewed at <http://prms.nrcs.usda.gov/prs>. From the opening menu, select “Reports” in the top tool bar. Next, select “2004 Reports” if it’s active, and “2003 PRMS Reports” if it’s not. Pick the conservation treatment of interest on the page that comes up and reset the date to 2004 Reports if it is not set there. Pick the conservation practice of interest. In the location drop box of the page that comes up, select “Tennessee” and click on the “Refresh” button. In the “By” drop box that comes up, select “Hydrologic Unit” and click on the “Refresh” button. The report of interest can now be viewed.

The data can be used to determine broad distribution trends in service provided to customers by NRCS conservation partnerships. These data do not show sufficient detail to enable evaluation of site-specific conditions (e.g., privately-owned farms and ranches) and are intended to reflect general trends.

CONSERVATION PRACTICE	TOTAL	
	FEET	ACRES
Land Treatment: Buffers		18
Grazing/Forages Practices		376

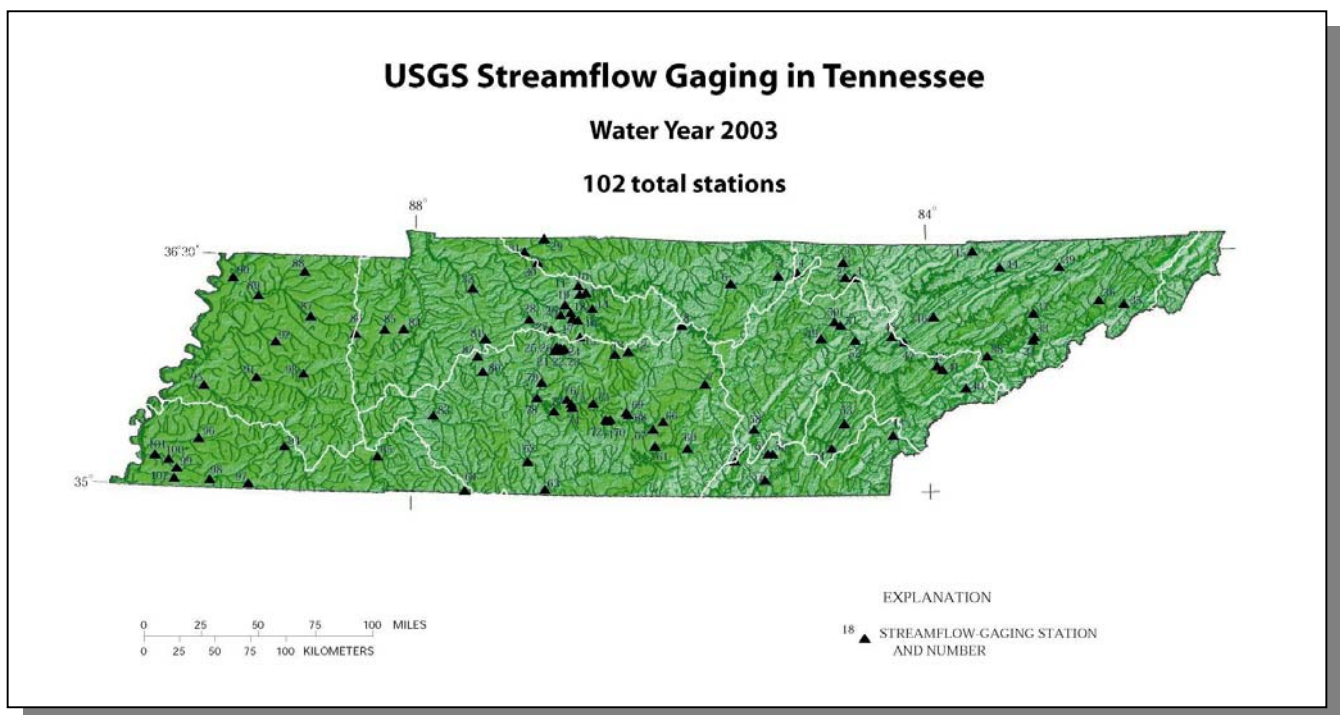
**Table 5-1. Landowner Conservation Practices in Partnership with NRCS in the Tennessee Portion of the Wolf River Watershed.** Data are from PRMS for October 1, 2003 through September 30, 2004 reporting period. More information is provided in Appendix V.

**5.2.B. United States Geological Survey Water Resources Programs – Tennessee District** The U.S. Geological Survey (USGS) provides relevant and objective scientific studies and information for public use to evaluate the quantity, quality, and use of the Nation’s water resources. In addition to providing National assessments, the USGS also conducts hydrologic studies in cooperation with numerous Federal, State, and local agencies to address issues of National, regional, and local concern. Please visit <http://water.usgs.gov/> for an overview of the USGS, Water Resources Discipline.

The USGS collects hydrologic data to document current conditions and provide a basis for understanding hydrologic systems and solving hydrologic problems. In Tennessee, the USGS records streamflow continuously at more than 102 gaging stations equipped with recorders and makes instantaneous measurements of streamflow at many other locations. Ground-water levels are monitored Statewide, and the physical, chemical, and biologic characteristics of surface and ground waters are analyzed. USGS activities also

include the annual compilation of water-use records and collection of data for National baseline and water-quality networks. National programs conducted by the USGS include the National Atmospheric Deposition Program (<http://bgs.usgs.gov/acidrain/>), National Stream Quality Accounting Network (<http://water.usgs.gov/nasqan/>), and the National Water-Quality Assessment Program (<http://water.usgs.gov/nawqa/>). For specific information on the Upper and Lower Tennessee NAWQA studies, please visit <http://tn.water.usgs.gov/lten/tenn.html>

*USGS Water Resources Information on the Internet.* Real-time and historical streamflow, water levels, and water-quality data at sites operated by the Tennessee District can be accessed at <http://waterdata.usgs.gov/tn/nwis/nwis>. Data can be retrieved by county, hydrologic unit code, or major river basin using drop-down menus. Contact Donna Flohr at (615) 837-4730 or [dfflohr@usgs.gov](mailto:dfflohr@usgs.gov) for specific information about streamflow data. Recent publications by the USGS staff in Tennessee can be accessed by visiting <http://tn.water.usgs.gov/pubpg.html>. This web page provides searchable bibliographic information to locate reports and other products about specific areas.



**5.2.C. U.S. Fish and Wildlife Service.** The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. Sustaining our nation's fish and wildlife resources is a task that can be accomplished only through the combined efforts of governments, businesses, and private citizens. The U.S. Fish and Wildlife Service (Service) works with State and Federal agencies and Tribal governments, helps

corporate and private landowners conserve habitat, and cooperates with other nations to halt illegal wildlife trade. The Service also administers a Federal Aid program that distributes funds annually to States for fish and wildlife restoration, boating access, hunter education, and related projects across America. The funds come from Federal excise taxes on fishing, hunting, and boating equipment.

### *Endangered Species Program*

Through the Endangered Species Program, the Service consults with other federal agencies concerning their program activities and their effects on endangered and threatened species. Other Service activities under the Endangered Species Program include the listing of rare species under the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended: 16 U.S.C. 1531 et seq.) and the recovery of listed species. Once listed, a species is afforded the full range of protections available under the ESA, including prohibitions on killing, harming or otherwise taking a species. In some instances, species listing can be avoided by the development of Candidate Conservation Agreements, which may remove threats facing the candidate species, and funding efforts such as the Private Stewardship Grant Program. For a complete listing of endangered and threatened species in Tennessee, please visit the Service's website at <http://www.fws.gov/cookeville/>.

Recovery is the process by which the decline of an endangered or threatened species is stopped and reversed, and threats to the species' survival are eliminated, so that long-term survival in nature can be ensured. The goal of the recovery process is to restore listed species to a point where they are secure and self-sustaining in the wild and can be removed from the endangered species list. Under the ESA, the Service and National Marine Fisheries Service were delegated the responsibility of carrying out the recovery program for all listed species.

In an effort to preclude the listing of a rare species, the Service engages in proactive conservation efforts for unlisted species. The program covers not only formal candidates but other rare species that are under threat. Early intervention preserves management options and minimizes the cost of recovery.

### *Partners for Fish and Wildlife Program*

The U.S. Fish and Wildlife Service established the Partners for Fish and Wildlife Program to restore historic habitat types that benefit native fishes and wildlife. The program adheres to the concept that restoring or enhancing habitats such as wetlands or other unique habitat types will substantially benefit federal trust species on private lands by providing food and cover or other essential needs. Federal trust species include threatened and endangered species, as well as migratory birds (e.g. waterfowl, wading birds, shorebirds, neotropical migratory songbirds).

Participation is voluntary and various types of projects are available. Projects include livestock exclusion fencing, alternate water supply construction, streambank stabilization, restoration of native vegetation, wetland restoration/enhancement, riparian zone reforestation, and restoration of in-stream aquatic habitats.

#### *HOW TO PARTICIPATE*

- Interested landowners contact a Partners for Fish and Wildlife Biologist to discuss the proposed project and establish a site visit.
- A visit to the site is then used to determine which activities the landowner desires and how those activities will enhance habitat for trust resources. Technical advice on proposed activities is provided by the Service, as appropriate.
- Proposed cost estimates are discussed by the Service and landowner.
- A detailed proposal which describes the proposed activities is developed by the Service biologist and the landowner. Funds are competitive, therefore the proposal is submitted to the Service's Ecosystem team for ranking and then to the Regional Office for funding.
- After funding is approved, the landowner and the Service co-sign a Wildlife Extension Agreement (minimum 10-year duration).
- Project installation begins.
- When the project is completed, the Service reimburses the landowner after receipts and other documentation are submitted according to the Wildlife Extension Agreement.

For more information regarding the Endangered Species and Partners for Fish and Wildlife programs, please contact the Tennessee Ecological Services Field Office at (931)-528-6481 or visit their website at <http://www.fws.gov/cookeville/>.

**5.2.D. United States Army Corps of Engineers-Memphis District.** The Memphis District, U.S. Army Corps of Engineers is one of six districts in the Mississippi Valley Division. The District's area of responsibility encompasses 25,000 square miles, portions of six states, 15 major watersheds, and approximately 3 million citizens. The Memphis District's mission is to offer flood damage reduction throughout the region, provide navigation to 355 miles of the Mississippi River, provide environmental stewardship through our Regulatory and Civil Works programs, conduct emergency response to disasters, and to perform other authorized Civil Works projects.

#### Regulatory Program

The U.S. Army Corps of Engineers has been involved in regulating certain activities in the nation's water since 1890. Prior to 1968, the primary thrust for the regulatory program was the protection of navigation. As a result of new laws and judicial decisions, the program has evolved to one that considers the full public interest by balancing the favorable impacts against detrimental impacts.

Section 10 of the Rivers and Harbors Act of 1899 - requires approval prior to the accomplishment of any work in or over navigable waters of the United States, or which affects the course, location, condition or capacity of such waters. Typical activities requiring Section 10 permits are:

- Construction of piers, wharves, bulkheads, dolphins, marinas, ramps, and cable/pipeline crossings.
- Dredging and excavation

The Wolf River is considered navigable under Section 10 criteria for a distance of 15 miles above its mouth.

[Section 404 of the Clean Water Act](#) - requires approval prior to discharging dredged or fill material into the waters of the United States. Typical activities requiring Section 404 permits are:

- Depositing of fill or dredged material in waters of the U.S. or adjacent wetlands.
- Site development fill for residential, commercial, or recreational developments.
- Construction of revetments, groins, breakwaters, levees, dams, dikes, and weirs.
- Placement of riprap and road fills.

#### Civil Works Program

The Corps' ongoing Civil Works responsibilities date back to the early 1800's when Congress authorized the removal of navigation hazards and obstacles. Over the years, succeeding Administrations and Congresses have expanded the Corps' missions to include most all water-related planning, development, and construction areas where a Federal interest is involved. Funds for [Congressionally Authorized Projects](#) are provided through Energy and Water Appropriations Acts and through contributions from non-Federal entities for specific projects.

Civil Works projects may also be funded under the [Continuing Authorities Program](#) (CAP). Congress has provided the Corps with standing authorities to study and build specific water resources projects for specific purposes and with specified spending limits. CAP projects are usually implemented in a faster time frame, are limited in complexity, have Federal cost limits, are approved by the Division Commander, and do not need Congressional authorization.

The Memphis District completed construction of the Wolf River and Tributaries, Tennessee and Mississippi (House Document No.76, 85<sup>th</sup> Congress) flood control project in 1964. Construction involved channel enlargement and realignment from the mouth of the Wolf River to the mouth of Gray's Creek. The project greatly increased the flood control capacity of the lower 22 miles of the Wolf River in the channelized section.

Flood control and drainage improvements in the lower reaches of the basin have dramatically impacted the quantity and quality of fish and wildlife habitat. The prior work significantly reduced seasonal flooding, eliminated large amounts of riparian and fishery habitat, and initiated erosion, headcutting, and long term drying of adjacent wetlands. The erosion and headcutting have extended approximately eight miles up the main channel and tributaries. These factors have caused and will continue to cause a rapid loss to fishery habitat, adjacent wetlands, seasonally flooded bottomland hardwoods, and riparian habitat.

The Memphis District, Shelby County, and the Chickasaw Basin Authority have initiated construction on the Wolf River, Memphis, Tennessee (Section 101, Water Resources Development Act 2000) project to arrest the headcut and preserve wildlife habitat. The ecosystem restoration project includes six main channel stabilization weirs, 18 tributary weirs, two cutoff prevention weirs, trails, wildlife corridors, and three boat ramps.

Additional Information

To obtain additional information about the District, please refer to the home page at: <http://www.mvm.usace.army.mil>, or contact the following offices:

Public Affairs Office (General Information):	(901) 544-3348
Regulatory Branch:	(901) 544-3473
Environmental Branch	(901) 544-3857

For additional information concerning the Wolf River project please contact Mr. Richard Hite at (901) 544-0706, or [richard.l.hite@mvm02.usace.army.mil](mailto:richard.l.hite@mvm02.usace.army.mil).



### **5.3. STATE PARTNERSHIPS.**

**5.3.A. TDEC Division of Water Supply.** The Source Water Protection Program, authorized by the 1996 Amendments to the Safe Drinking Water Act, outline a comprehensive plan to achieve maximum public health protection. According to the plan, it is essential that every community take these six steps:

- 1) Delineate the drinking water source protection area
- 2) Inventory known and potential sources of contamination within these areas
- 3) Determine the susceptibility of the water supply system to these contaminants
- 4) Notify and involve the public about threats identified in the contaminant source inventory and what they mean to their public water system
- 5) Implement management measures to prevent, reduce or eliminate threats
- 6) Develop contingency planning strategies to deal with water supply contamination or service interruption emergencies (including natural disaster or terrorist activities).

Source water protection has a simple objective: to prevent the pollution of the lakes, rivers, streams, and ground water (wells and springs) that serve as sources of drinking water before they become contaminated. This objective requires locating and addressing potential sources of contamination to these water supplies. There is a growing recognition that effective drinking water system management includes addressing the quality and protection of the water sources.

Source Water Protection has a significant link with the Watershed Management Program goals, objectives and management strategies. Watershed Management looks at the health of the watershed as a whole in areas of discharge permitting, monitoring and protection. That same protection is important to protecting drinking water as well. Communication and coordination with a multitude of agencies is the most critical factor in the success of both Watershed Management and Source Water Protection.

Watershed management plays a role in the protection of both ground water and surface water systems. Watershed Management is particularly important in areas with karst (limestone characterized by solution features such as caves and sinkholes as well as disappearing streams and spring), since the differentiation between ground water and surface water is sometimes nearly impossible. What is surface water can become ground water in the distance of a few feet and vice versa.

Source water protection is not a new concept, but an expansion of existing wellhead protection measures for public water systems relying on ground water to now include surface water. This approach became a national priority, backed by federal funding, when the Safe Drinking Water Act amendments (SDWA) of 1996 were enacted. Under this Act, every public drinking water system in the country is scheduled to receive an assessment of both the sources of potential contamination to its water source of the threat these sources may pose by the year 2003 (extensions were available until 2004). The assessments are intended to enhance the protection of drinking water supplies within existing programs at the federal, state and local levels. Source water



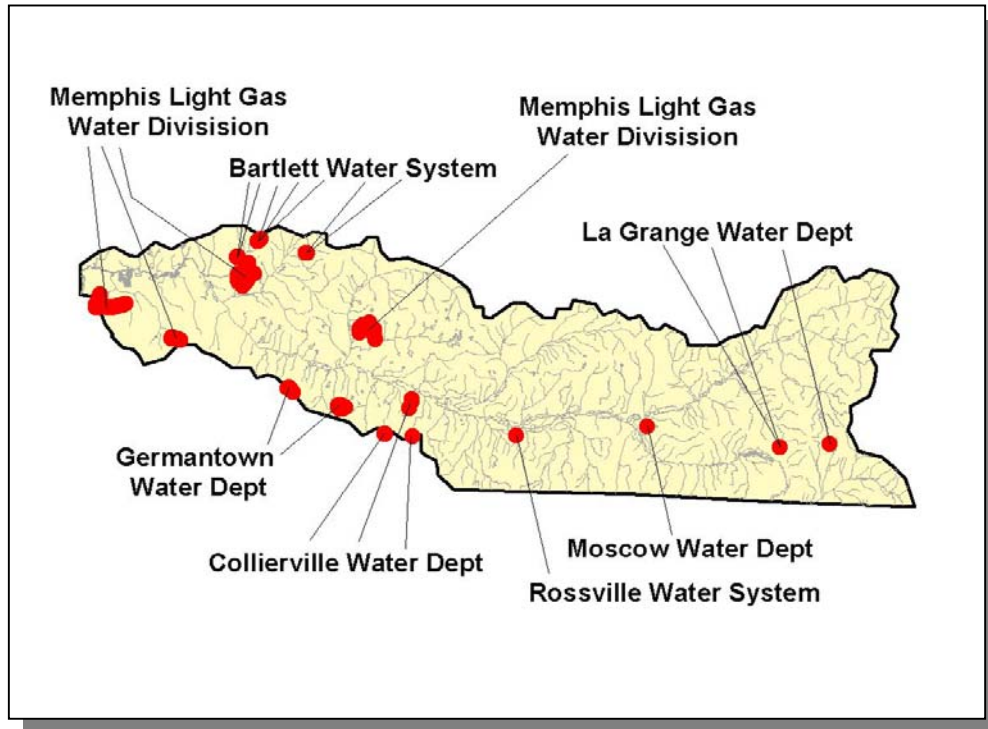
assessments were mandated and funded by Congress. Source water protection will be left up to the individual states and local governments without additional authority from Congress for that progression.

As a part of the Source Water Assessment Program, public water systems are evaluated for their susceptibility to contamination. These individual source water assessments with susceptibility analyses are available to the public at <http://www.state.tn.us/environment/dws> as well as other information regarding the Source Water Assessment Program and public water systems.

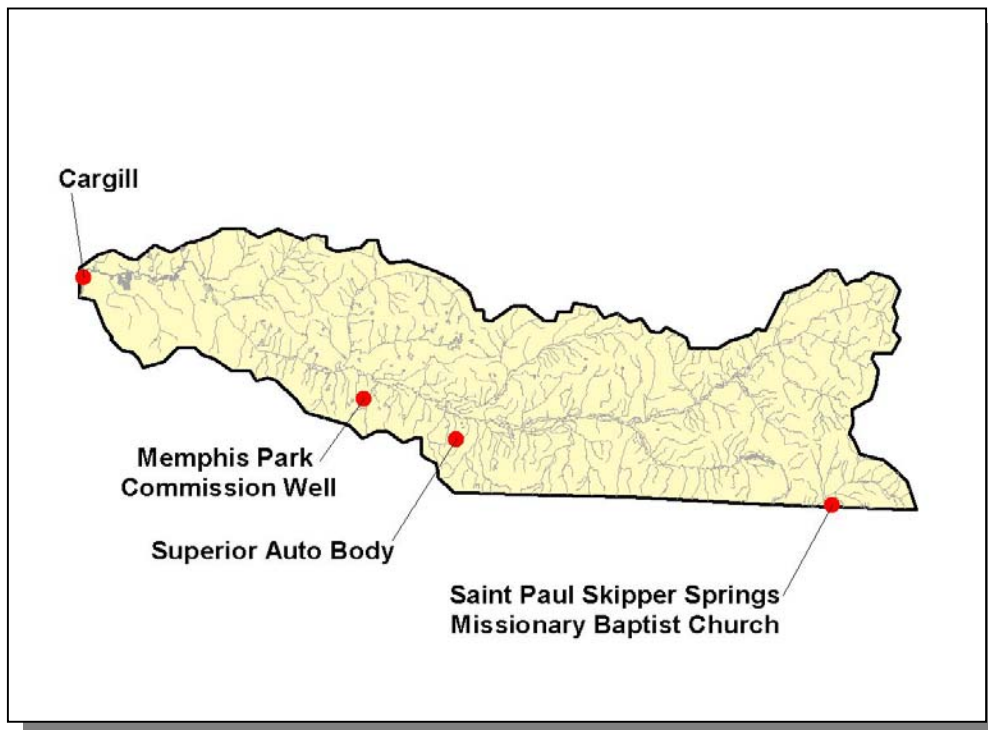
For further discussion on ground water issues in Tennessee, the reader is referred to the Ground Water Section of the 305(b) Water Quality Report at:

<http://www.state.tn.us/environment/water.htm>.

The intent of this report is to provide the public with an overall characterization of ground water quality and hydrogeology for Tennessee.



**Figure 5-1. Locations of Community and Public Groundwater Supply Intakes in the Tennessee Portion of the Wolf River Watershed.**



**Figure 5-2. Locations of UIC (Underground Injection Control) Sites in the Tennessee Portion of the Wolf River Watershed.** Injection wells include stormwater sinkholes modified for drainage, commercial/industrial septic tanks, and large capacity septic tanks.

**5.3.B. Tennessee Department of Agriculture.** The Tennessee Department of Agriculture's Water Resources Section consists of the federal Section 319 Nonpoint Source Program and the Agricultural Resources Conservation Fund Program. Both of these are grant programs which award funds to various agencies, non-profit organizations, and universities that undertake projects to improve the quality of Tennessee's waters and/or educate citizens about the many problems and solutions to water pollution. Both programs fund projects associated with what is commonly known as "nonpoint source pollution."

The Tennessee Department of Agriculture's Nonpoint Source Program (TDA-NPS) has the responsibility for management of the federal Nonpoint Source Program, funded by the US Environmental Protection Agency through the authority of Section 319 of the Clean Water Act. This program was created in 1987 as part of the reauthorization of the Clean Water Act, and it established funding for states, territories and Indian tribes to address NPS pollution. Nonpoint source funding is used for installing Best Management Practices (BMPs) to stop known sources of NPS pollution, training, education, demonstrations and water quality monitoring. The TDA-NPS Program is a non-regulatory program, promoting voluntary, incentive-based solutions to NPS problems. The TDA-NPS Program basically funds three types of programs:

- **BMP Implementation Projects.** These projects aid in the improvement of an impaired waterbody, or prevent a non-impaired water from becoming listed on the 303(d) List.
- **Monitoring Projects.** Up to 20% of the available grant funds are used to assist the water quality monitoring efforts in Tennessee streams, both in the state's 5-year watershed monitoring program, and also in performing before-and-after BMP installation, so that water quality improvements can be verified. Some monitoring in the Wolf River Watershed was funded under an agreement with the Tennessee Department of Agriculture, Nonpoint Source Program (U.S. Environmental Protection Agency Assistance Agreements C9994674-00-0, C9994674-01-0, and C9994674-02-0).
- **Educational Projects.** The intent of educational projects funded through TDA-NPS is to raise the awareness of landowners and other citizens about practical actions that can be taken to eliminate nonpoint sources of pollution to the waters of Tennessee.

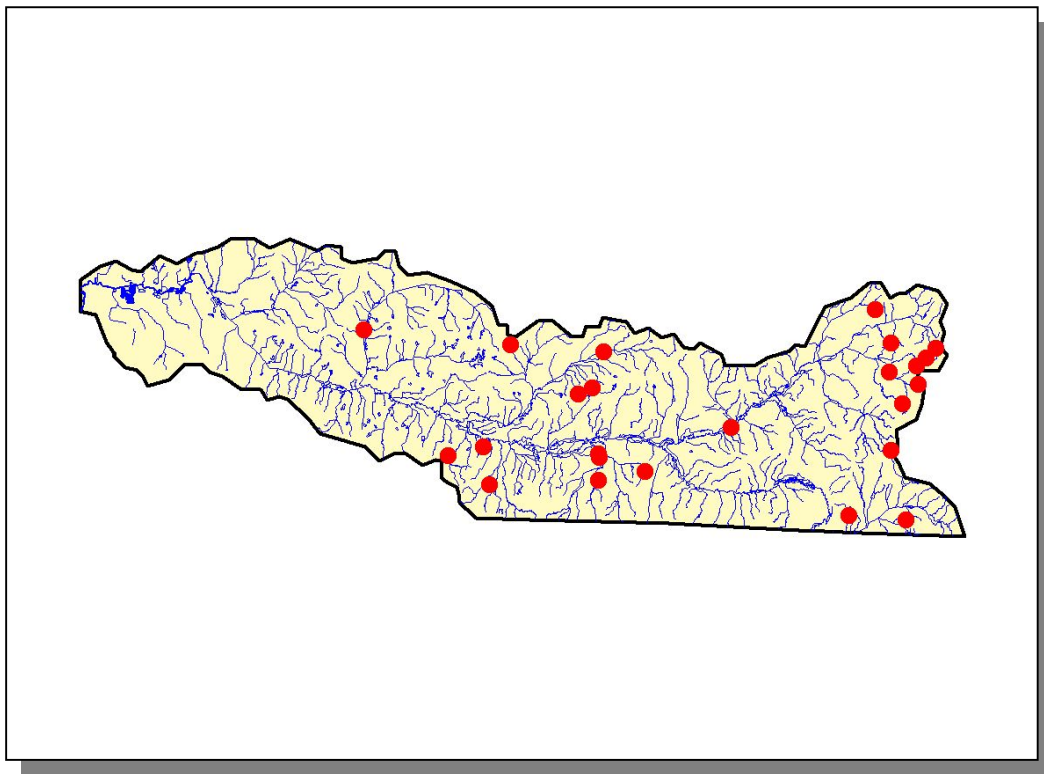
The Tennessee Department of Agriculture Agricultural Resources Conservation Fund Program (TDA-ARCF) provides cost-share assistance to landowners across Tennessee to install BMPs that eliminate agricultural nonpoint source pollution. This assistance is provided through Soil Conservation Districts, Resource Conservation and Development Districts, Watershed Districts, universities, and other groups. Additionally, a portion of the TDA-ARCF is used to implement information and education projects statewide, with the focus on landowners, producers, and managers of Tennessee farms and forests.

Participating contractors in the program are encouraged to develop a watershed emphasis for their individual areas of responsibility, focusing on waters listed on the Tennessee 303(d) List as being impaired by agriculture. Current guidelines for the

TDA-ARCF are available. Landowners can receive up to 75% of the cost of the BMP as a reimbursement.

Since January of 1999, the Department of Agriculture and the Department of Environment and Conservation have had a Memorandum of Agreement whereby complaints received by TDEC concerning agriculture or silviculture projects would be forwarded to TDA for investigation and possible correction. Should TDA be unable to obtain correction, they would assist TDEC in the enforcement against the violator. More information forestry BMPs is available at:

<http://tennessee.gov/agriculture/forestry/BMPs.pdf>, and the complaint form is available at: <http://tennessee.gov/environment/wpc/logform.php>.



**Figure 5-3. Location of BMPs installed from 1999 through 2003 in the Tennessee Portion of the Wolf River Watershed with Financial Assistance from the Tennessee Department of Agriculture's Nonpoint Source and Agricultural Resources Conservation Fund Grant Programs. More information is provided in Appendix V.**

## **5.4. LOCAL INITIATIVES.**

**5.4.A. Tennessee Water Sentinels.** The Tennessee Water Sentinels (TWS) is a water quality initiative of the national Sierra Club. There are 33 projects operating in 13 states. Its purpose is to engage Sierra Club members and the general public in the protection of local streams. The TWS project is working to protect the Wolf River and its tributaries as well as other streams. TWS does this by auditing the public records on file at TDEC's Memphis Environmental Assistance Center. TWS targets the Tennessee Multi-Sector General Permits and the Construction Storm Water General Permits in these audits. These audits yield much information regarding a given permit holder's compliance with the terms and conditions of a given permit. In addition, storm water sampling from a public access point is occasionally conducted. These samples are analyzed at a laboratory. The information from the audits as well as the sampling data is compiled into a report that is submitted to EPA, TDEC, Local Government, the media and the public. The purpose of these reports is to assist TDEC in insuring that the Wolf River, and other streams these permit holders discharge to, be as clean as possible.

If you wish to help the Tennessee Water Sentinels, or to read the reports that have been released, please contact James H. Baker, Project Director, at:  
<http://tennessee.sierraclub.org/chickasaw/chickws.htm>

**5.4.B. Wolf River Conservancy.** The non-profit Wolf River Conservancy's mission is to protect and enhance lands along the Wolf River within the 100-year flood plain for passive recreation and education.

Founded in 1985, the Wolf River Conservancy is successfully working to enhance the Wolf's lands with canoe and hiking trails, boardwalks and all weather greenway trails. Our primary focus is on protecting the 42,000 acres of 100-year floodplain lands bordering the Wolf River in Tennessee. By protecting these lands from logging and development we are working to protect and enhance a corridor for wildlife and muscle powered recreation.

By protecting these floodplain lands, we also hope to protect our aquifer recharge zones and our famously pure, delicious drinking water. To date, we've been remarkably successful, protecting more than 17,000 acres – forever. We're nearly at the tipping point by reaching our halfway point. We plan to protect all of those 42,000 floodplain acres.

We divide the Wolf River into three sections. The first section of the Wolf we refer to as the Headwaters. Here the river runs from its source in the artesian springs of Baker's Pond in the Mississippi hill country of Holly Springs National Forest about 40 miles to the town of Moscow, TN. This includes the Ghost River State Natural Area and the Wolf River Wildlife Management Area, totaling approx. 7500 acres near LaGrange, TN. The LaGrange / Moscow area includes one of the states most beautiful canoe trails – the "Ghost River" Section. We worked to protect this 8-½ mile river section from logging and development in 1995 by

organizing an emergency fundraising campaign that raised more than \$4 million in six months.

The Middle Section of the Wolf River runs from Moscow to the eastern edge of Collierville. Like the upstream sections, here the river is still largely in its natural state, meandering through large stands of timber and wetlands. We consider this section to be the most threatened because of the development spreading eastward from the Memphis Metropolitan area and from the soon to be completed outer expressway loop of TN Hwy 385 and the future I-69 on the Shelby/Fayette County line. We fear that its exit ramps will be like kudzu vines spewing unplanned sprawl across the river's beautiful floodplain forests and wetlands.

Protecting Wolf River lands eastward into Fayette County and Mississippi helps to prevent contamination of our aquifer recharge zones. Importantly, the Memphis Sands, which is where we draw our drinking water, are 500 ft. below Memphis. However, the sand layers tilt in such a way that they come all the way to the surface at the Shelby County/Fayette County line eastward throughout the rest of the Wolf's watershed. Consequently, we are currently fundraising and purchasing strategic land tracks in cooperation with our government partners to protect them for our community forever.

The urban sections of the river run through the towns of Collierville, Germantown and Memphis until the Wolf reaches its mouth at the Mississippi River in downtown Memphis.

With our assistance, the U.S. Corp of Engineers started in the fall of 2004 a \$10 million project that will literally save the Wolf River. Headcutting at Collierville is moving upstream towards the Middle and Headwaters sections of the Wolf. Channelizing the downstream, urban Wolf in the 1960's caused the river to head cut and drop, while also draining adjacent wetlands and affecting our aquifer recharge zones. While implementing the project, more than 2,138 acres will be protected in an 8-mile long Greenway Park on both sides of the Wolf stretching from Collierville/Arlington Rd. to Houston Levee Rd. in the heart of one of the fastest growing cities in TN. Trails and boat ramps will also be installed.

Finally, the Wolf River Conservancy is working with the cities of Memphis, Germantown, Collierville and other communities along its banks to complete boardwalks, hiking trails and urban greenways to provide muscle powered access to our greatest natural resource, our Wolf River.

For every \$20 a member has donated, we have brought in more than \$200 in funds from our partners for protecting and enhancing the Wolf River. Consequently, we stretch our donor funds a long way to protect and enhance Wolf River lands for our very own community.

Please call our office or visit our website for additional information and/or to support our efforts:

[www.wolfriver.org](http://www.wolfriver.org)  
[wrc@wolfriver.org](mailto:wrc@wolfriver.org)  
901-452-6500